

Rheological Behavior of Fresh Activated Sludge

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Abstract : Despite of few research works on municipal sludge, still there is a lack of actual data. Thus, this work was focused on the conditioning and rheology of fresh activated sludge. The effect of cationic polyelectrolyte has been investigated at different concentrations and pH values in a comparative fashion. Yield stress is presented in all results indicating the minimum stress that necessary to reach flow conditions. Connections between particle-particle is the reason for this yield stress, also, the addition of polyelectrolyte causes strong bonds between particles and water resulting in the aggregation of particles which required higher shear stress in order to flow. The results from the experiments indicate that the cationic polyelectrolytes have significant effluence on the sludge characteristic and water quality such as turbidity, SVI, zone settling rate and shear stress.

Keywords : rheology, polyelectrolyte, settling volume index, turbidity

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